Ethical Awareness in the Age of Analytics: Views from the United States and the Philippines

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ABSTRACT

Without a set of guidelines in how one should behave in certain circumstances, people would base their actions on what they feel and think. This paper aims to demonstrate the similarity and differences in how two cultures look at the same ethical scenarios. Two scenarios concerning data errors, along with guide questions, were given to two sections of students studying introduction to data analytics in different countries, the United States of America (US) and the Philippines. Thirty-five students from the US joined the study, while 38 students from the Philippines participated. The eight principles from the Daniels Fund Ethics Initiative were used to gauge the ethicality of each scenario. As businesses move more toward data-driven decision making in the 21st century, there is an urgent need to incorporate ethical principles in data analytics courses to establish a common ethical practice in data analytics across differing cultures.

Keywords: Analytics, Ethics awareness, Classroom Ethics, Data Fraud

1. INTRODUCTION

The need for ethical awareness in the undergraduate business classroom cannot be understated. With the embedding of technology in corporate America, fraud and unethical behavior are as close as a desktop computer or a smartphone. Many negative events of the recent past have been "blamed" on technology, from the flash crash of 2010 (Kirilenko, Kyle, Samadi, & Tuzun, 2010) to the accidents caused by self-driving automobiles (Teoh & Kidd, 2017). These events are enabled when we, humans, have "let the machines go" and watched as they performed sub-optimally.

Many other events have had a human hand in them to assist the poor behavior of technology-based, data-enabled, ethical breaches. These include the Volkswagen emissions scandal, where data was falsified so that automobiles would pass emissions requirements (Bachmann, Ehrlich, & Ruzic, 2018). Another case is the Kobe steel quality control data manipulation resulting in sub-standard steel in mass transportation applications (Dal Porto, 2017). More recently, a headline screamed, "Temple ousts business dean after report finds online MBA program for years submitted false data for rankings" (Jaschik, 2018, para 1). Many of these events include data errors, data manipulation, or data falsification.

Data fraud is not restricted to a continent, especially in the networked world. Data fraud is a global issue. In the Philippines, fraud cases run from unauthorized bank withdrawals without clients' knowledge (Dumlao-Abadilla, 2018) to Ponzi schemes and fake investors. As data fraud is a global problem, it is vital to understand the cultural elements that might

affect how fraud is viewed. Because, most often than not, people react (or respond) based on their perception of a particular situation. For the US and the Philippines, it is critical to understand how both nations look at ethical issues since more than 600 US companies are operating in the Philippines from various sectors and industries (US Embassy Manila, 2010). For example, how does "respect" translate between an individualistic and a collectivist culture, and how do "integrity" and "fairness" get interpreted on different continents?

Thus, this current study aims to demonstrate the similarity and differences in how the two cultures, the US and the Philippines, look at the same ethical scenarios. Moreover, the results of this work may be used by educators in developing and implementing the necessary refinements on their methods of incorporating ethics in teaching data analytics.

The next section briefly reviews the literature on ethics and the cultural dimensions. Then the methodology, results, and discussion follow next. The last section covers the conclusion, limitations, and recommendations.

2. LITERATURE REVIEW

Historically, whenever an ethical violation makes the popular press, society turns to educators for assistance in training and producing ethical workers. Beltramini, Peterson, and Kozmetsky (1984) state that "academicians are responsible for preparing future [managers] for their positions in business…" (p.195). This preparation includes ethical awareness and training, which, as stated in the same paper, "the traditional response to the challenge of developing ethical decision-makers and managers has been to turn to educators" (p. 195). Stretching this further, after the Arthur Andersen and Enron scandal, many of the states in the US began requiring an ethics course after passing the CPA exam, and before the certification would be issued (Bates, Waldrup, & Calhoun, 2008).

Ethics instruction in business departments has been under discussion for decades. High profile fraud cases (Watergate, Enron, and Kobe Steel) seem to increase interest in ethics instruction (including interest by the federal government). However, interest in ethics instruction in business departments should never wane due to the recurrence of fraudulent activities in the business world. One question generally debated centers around the concepts of a stand-alone ethics course versus ethics embedded across the curriculum (Gautschi & Jones, 1998; Ritter, 2006). Either way, the need for ethical training of college students should be continually explored and revised by faculty as interests and technology change the corporate environment students enter into upon graduation.

Results from ethical training in the post-secondary classroom have been varied, to say the least. Gautschi and Jones (1998) found that an embedded course in the curriculum enhanced the ability of students to identify ethical issues. Ritter's (2006) study embedded a training module into a course, and results indicated an increased awareness of females to ethical issues and the associated decision-making process. Similar results were obtained by Wang and Calvano (2015), who found that women "are generally more inclined to act ethically than men" (p.591) when exposed to ethical scenarios in the classroom as a component of a marketing class. Slocum, Rohlfer, and Gonzalez-Canton

(2014) incorporated ethics-based micro-insertions into the classroom to raise awareness of ethical issues in the business classroom.

A different point-of-view is presented by Jewe (2008), who found that students who completed a stand-alone ethics course had no significant difference in their ethical attitudes. Jewe goes on to postulate that a more comprehensive approach (such as embedding ethics across the business curriculum) might produce more change in ethical attitudes. On the opposite end of the spectrum, McDonald and Donleavy (1995) present several objections to the teaching of business ethics, indicating that implementation of business ethics in the curriculum is not a straightforward task.

Finally, Jonson, McGuire, and O'Neill (2015) indicated that the mode of delivery could affect perceptions of ethical dilemmas, but they did not advocate for one approach over the other. However, they did point out that their analysis also indicated differences in ethical perceptions due to national origins. No matter what method is chosen, ethical leadership leads to ethical decisions by the workforce as is discussed in Malik & Nawaz (2018). This is critical, as universities are training the next generation of leaders.

Hofstede (2019) defined national culture as "the collective programming of the mind which distinguishes the members of one category of people from another" (p. 193). He further explained that aside from national origins, the regional background, sex, age group, and the organizations to which one belongs may program how one thinks, feels, and acts. Hofstede (2011) defined the dimensions of national culture as power distance, individualism/collectivism, gender, uncertainty, time orientation, and indulgence. Power distance is the extent to which members of an organization accept unequally distributed power. Individualism is the degree of integration of the people in a society into groups. The lower the index for individualism implies a society that has a high degree of collectivism. Masculinity and femininity refer to the values of the society. For instance, the assertive and competitive societies are described as masculine, while modest and caring societies are portrayed as feminine. Uncertainty avoidance deals with a society's tolerance for unstructured situations. The time dimension refers to the long-term or short-term orientation of the nation. Finally, indulgence refers to the extent to which the people of a society allow or control the gratification of natural human desires related to having fun.

In a global sense, knowing the cultural differences and how the future workforce might react to ethical scenarios is of importance to managers in multi-national corporations. As established earlier, there are many US-based businesses in the Philippines, and this is due to the common language - English. Table 1 is Hofstede's dimensions of culture and the scores for both countries, along with similarity assertions.

Table 1: Hofstede's dimensions of culture for the US and the Philippines

Dimension	Scores – Philippines	Scores US.	Similar
Power Distance	94	40	No
Individualism	32	91	No
Masculinity	64	62	Yes
Uncertainty	44	46	Yes
Time Orientation	27	26	Yes

Indulgence	42	68	No

(https://www.hofstede-insights.com/product/compare-countries/)

Table 1 shows that the US and the Philippines are similar on three of the six dimensions of culture, and differ on the power distance, individualism/collectivism, and indulgence dimensions. For a more thorough definition and description of Hofstede's dimensions, see Hofstede (2011). If and how these differences appear in ethical decision-making will be addressed in this paper.

There is a shortage of literature that studies culture in the context of ethical decision making in business situations between the US and Philippine students. After a thorough online search, we only found one study related to this current study that was conducted in the last ten years. An interesting comparison between the cultures is investigated in Flaming, Agacer, and Uddin (2010), where multiple ethical vignettes were presented to both US and Philippine students and the results examined. Using an approve/disapprove Likert scale, their results showed that there were many statistically significant differences between the Filipino students and the US students in how they viewed the ethical situations, which may affect decision making.

In the Philippines, ethical decision making also has an additional dimension, that of language. While the official language of the Philippines is Filipino, the medium of instruction in most of the universities in the Philippines is English (stemming from the US's involvement in the Philippines from 1898 through WWII, to include the modernization of Philippine's educational system in the early 20th century), so business ethics is "understood in the American sense" (Sison & Palma-Angeles, 1997). This can be viewed in Table 2, where the contrasting values (good/bad, right/wrong) from the Filipino culture are compared to the Daniels Ethics Principles.

Table 2: Filipino Ethical Structure Compared to Daniels Ethics Principles

Filipino Concept Pairs in Business Ethics	Corresponding Daniels Ethical Principle(s)
Right vs. Wrong (tama vs. mali)	Fairness Integrity
Legal vs. Illegal (hindi bawal vs. bawal)	Rule of Law Transparency
Good vs. Evil (mabuti vs. masama)	Viability Accountability
and, stemming from the Christian faith practiced by the overwhelming majority of Filipinos:	
Respect for Property	Respect
Trustworthiness	Trust

(Sison & Palma-Angeles, 1997; Daniels, 2018)

Table 2 corresponds nicely to what Reyes (2015), and Racelis (2013) refer to as virtue ethics in the Philippines, which, fundamentally, are aligned with "the preservation and strengthening of human relationships" (Reyes, 2015, p. 148).

The article of Sia & Tan (2016) proposed that the inconsistencies in their findings when compared to the western results on the impact of perceived fairness in the process of performing services to Filipino consumers, may be attributed to the different cultures between the two nations. For instance, the high power distance index of the Philippines (94) implies that Filipinos accept that power is not distributed equally. Thus, Filipinos with lower ranks or coming from the lower-income brackets may not expect equality in treatment with the higher income brackets or positions. But the different treatments may not sit well with Americans.

Building on these ideas from the literature, this paper evaluates conclusions drawn from two sets of students, one in the US, and another in the Philippines, when evaluating two ethical dilemmas dealing with quantitative results. In business, the "bottom line" is a number. Much of the fraud in business centers are around the manipulation of numerical data or results, so illustrating these types of fraud for students is a necessary component of ethical awareness in a business department. The results of the students' appraisal of the cases, based in the Daniels Ethics framework, are compared, and cultural differences are discussed.

Thus, we hypothesized the following:
H1: there are no significant differences between the two ethical scenarios for US students.
H2: there are no significant differences between the two ethical scenarios for the Philippine students.
H3: there is a significant difference between the US and the Philippine students' perception of ethics applied to data fraud and data error.

3. METHODOLOGY

To test the hypotheses, two cases were designed for students to discuss and draw conclusions about how data fraud can affect a business using an easy to understand the ethical structure. The cases are given to two groups of students from different cultural backgrounds, the United States and the Philippines to see if there are consistencies or differences between the groups, and how the cases are viewed through the ethical framework provided.

The structure for assessing the ethicality of a decision for these cases utilized the eight Principles from the Daniels Fund Ethics Initiative (2018). These principles are:

- **Integrity** - Act with honesty in all situations
- **Trust** - Build trust in all stakeholder relationships
- **Accountability** - Accept responsibility for all decisions
- **Transparency** - Maintain open and truthful communications
- **Fairness** - Engage in fair competition and create equitable and just relationships
- **Respect** - Honor the rights, freedoms, views, and property of others
- **Rule of Law** - Comply with the spirit and intent of laws and regulations
- **Viability** - Create long-term value for all relevant stakeholders

While there are many types of ethical structures, the Daniels Principles are a "rule-based" structure which is simple to teach and apply to a situation because these rules (or

principles) are "constant foundations – not relative to a specific situation" (Daniels Fund, 2018, para. 8). These constant foundations enable students from many different business disciplines and different countries to discuss and debate these scenarios because university students have an inherent understanding of what trust, fairness, and rule of law are. In a business environment where new monikers such as data steward, data analyst, and data governance are now commonplace, an understanding of ethical behavior where data is concerned is of increasing importance. In universities and colleges where data analytics programs are being taught, the same understanding of ethical behavior when dealing with data is critical to the students' education.

The Daniels Ethics Fund (2018) enabled one medium-sized university in the USA to embed ethical training and awareness modules across the curriculum in a business department. Similarly, the Philippine university integrates ethical issues in all of its business-related courses through case studies.

Two instruments for discussion of ethical issues in data analytics were developed in the spring semester of 2017 in conjunction with the Daniels Fund Ethics Grant (2018). The first instrument (see Appendix A) dealt with a random sample of employee salaries and how the inclusion of one of the executive officer's salaries could "pull" the reported average salary higher than it actually is. The second case (see Appendix B) dealt with a set of house prices that had data entry errors and caused the slope of the regression line to be smaller than it should be. This could lead to inappropriate pricing models and incorrect house prices.

Using the structure of the Daniels Fund Ethics Principles, teams of students in multiple sections (two sections in the spring of 2017, and two sections in the spring of 2018) of an introduction to business analysis class were asked to evaluate which, if any, of the ethical principles were violated by the cases. These cases were distributed after the class had learned the analytical techniques used in each of the cases (case one – descriptive statistics, case two – simple linear regression) so that they could analyze the effect of the "bad" data being left in the data set for reporting purposes.

The students were given the URL of the Daniels Fund Ethics Initiative. They had to do some independent research on the principles and decide amongst themselves if the scenarios presented in the cases violated any of the principles. They were then tasked to discuss why the scenario violated the principle(s) in a written report format. The quality of the writing was not evaluated for this research, rather the students' responses of which ethical principles were violated (yes/no responses) were tabulated for comparison purposes.

The results of comparisons between the two semesters for the US students are presented first, with the results between the US classes and classes taught in the Philippines (in the fall semester of 2017 and the spring semester of 2019) being presented second. For all hypothesis tests, a z-test for the difference in proportions was used, with an α of 0.05.

4. RESULTS AND DISCUSSION

A total of 173 students (73 teams of two to three students) participated in the study. The students from the US were taking an introduction to data analysis class at a mid-sized, western university in spring semesters of 2017 and 2018, while the Philippine students were taking a data analytics class at a university in the central Visayas in fall 2017 and spring 2019. The cases were assigned as a class exercise for the students to work on to become familiar with the ethics principles, and to become familiar with the effects of data errors in a data set.

After the students in the US submitted their written responses, the results were tallied and graphs created to illustrate where the students thought the issues were with the scenarios based on the Daniels Fund Ethics Initiative Principles. The results for case 1 (descriptive statistics) and case 2 (simple linear regression) are shown in Tables 3 and 4, respectively.

Table 3: Case 1, n = 35, US Students

Principle	Integrity	Trust	Accountability	Transparency	Fairness	Respect	Rule of Law	Viability
Number Reporting Violation	31	34	27	24	20	11	9	15
Percent of Groups	88.6%	97.1%	77.1%	68.6%	57.1%	31.4%	25.7%	42.9%

Table 4: Case 2, n = 35, US Students

Principle	Integrity	Trust	Accountability	Transparency	Fairness	Respect	Rule of Law	Viability
Number Reporting Violation	32	34	25	24	17	9	8	20
Percent of Groups	88.9%	94.4%	69.4%	66.7%	47.2%	25.0%	22.2%	55.6%

The associated graphs are shown in Graph 1 and Graph 2.

Graph 1: Case 1 US Students
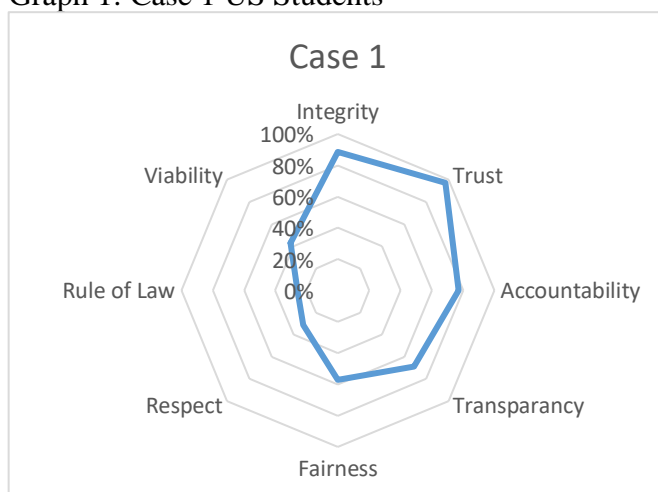
Graph 2: Case 2 US Students
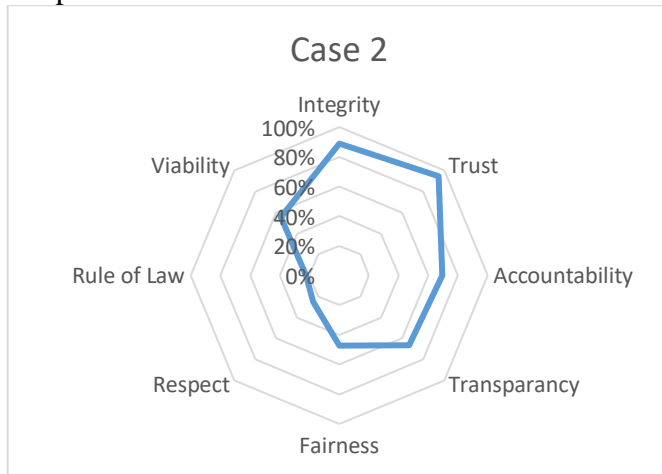
There were no statistical differences in how the students from the US viewed the violation of the ethical principles, as can be seen in Table 5. These hypotheses and the support of the null – in every case – "norms" the cases so that comparisons between cultures can be made, and the results explored with confidence that any differences merit investigation. These results, presented in graphs 1 and 2, indicate that students might be more familiar with the principles of integrity, trust, accountability, and transparency, while fairness, respect, rule of law, and viability might require more attention by the student groups, or the faculty member leading the class discussion. Thus, the results strongly support H1 that there are no significant differences between the two ethical scenarios for US students.

Table 5: Results of Hypotheses Tests, US Students

Null Hypothesis	Z score	P value
$\mu_{integrity\_case\_1} = \mu_{integrity\_case\_2}$	-0.04	0.9663
$\mu_{trust\_case\_1} = \mu_{trust\_case\_2}$	0.57	0.5720
$\mu_{accountability\_case\_1} = \mu_{accountability\_case\_2}$	0.73	0.4638
$\mu_{transparency\_case\_1} = \mu_{transparency\_case\_2}$	0.17	0.8639
$\mu_{fairness\_case\_1} = \mu_{fairness\_case\_2}$	0.84	0.4028
$\mu_{respect\_case\_1} = \mu_{respect\_case\_2}$	0.60	0.5471
$\mu_{rule\_of\_law\_case\_1} = \mu_{rule\_of\_law\_case\_2}$	0.34	0.7303
$\mu_{viability\_case\_1} = \mu_{viability\_case\_2}$	-1.07	0.2846

Evaluating the students' responses from the Philippines to the cases, Tables 6 and 7 are obtained.
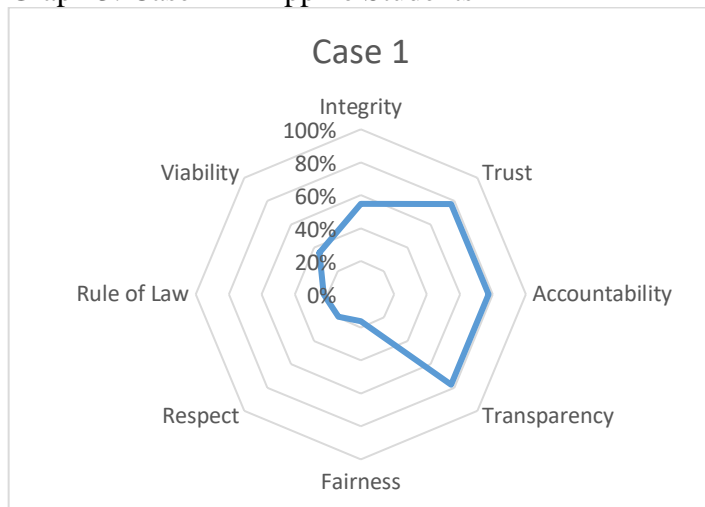
Table 6: Case 1, n = 38, Philippine Students

Principle	Integrity	Trust	Accountability	Transparency	Fairness	Respect	Rule of Law	Viability
Number Reporting Violation	17	24	24	24	5	6	7	11
Percent of Groups	55%	77%	77%	77%	16%	19%	23%	35%

Table 7: Case 2, n = 38, Philippine Students

Principle	Integrity	Trust	Accountability	Transparency	Fairness	Respect	Rule of Law	Viability
Number Reporting Violation	26	28	21	26	10	8	9	19
Percent of Groups	87%	93%	70%	87%	33%	27%	30%	63%

The associated graphs are shown in Graphs 3 and 4.

Graph 3: Case 1 Philippine Students
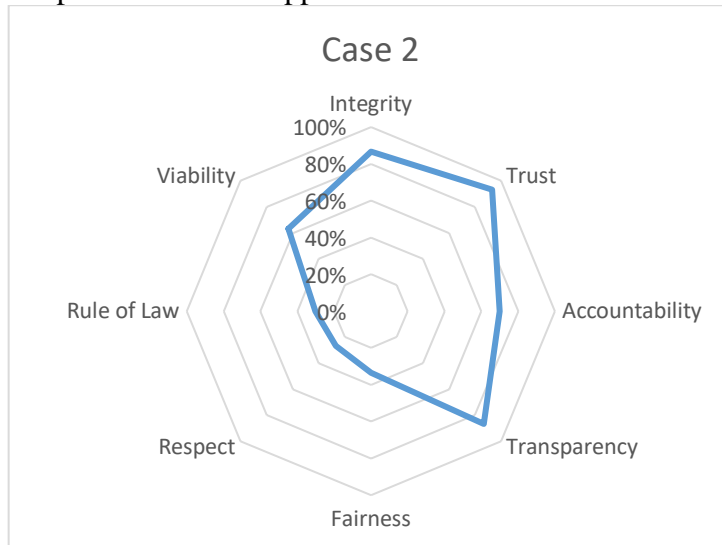
Graph 4: Case 2 Philippine Students

Table 8: Results of Hypothesis Tests, Philippine Students

Null Hypothesis	Z score	P value
$\mu_{integrity\_case\_1} = \mu_{integrity\_case\_2}$	-2.72	0.0064
$\mu_{trust\_case\_1} = \mu_{trust\_case\_2}$	-1.75	0.0799
$\mu_{accountability\_case\_1} = \mu_{accountability\_case\_2}$	0.65	0.5102
$\mu_{transparency\_case\_1} = \mu_{transparency\_case\_2}$	-0.94	0.3476
$\mu_{fairness\_case\_1} = \mu_{fairness\_case\_2}$	-1.56	0.1188
$\mu_{respect\_case\_1} = \mu_{respect\_case\_2}$	-0.68	0.4972
$\mu_{rule\_of\_law\_case\_1} = \mu_{rule\_of\_law\_case\_2}$	-0.66	0.5102
$\mu_{viability\_case\_1} = \mu_{viability\_case\_2}$	-2.18	0.0296

Table 8 illustrates that the Filipino students view both cases almost equally, with one noticeable difference – integrity. The students in the Philippines view the real estate case as having less integrity than the accountant case, most likely due to the nature of the party that may be negatively affected by the mistake. The expected impact of the error between internal stakeholders (accountant case) versus external stakeholders (real estate case) affected the perception of the students on the nature of the mistake. The differing view may be due to the Filipino's concept of social boundaries. Mendoza (2004) proposed that a Filipino regards "face" as one's honor or personhood. Such that when the public is negatively affected by an action, e.g., real estate case, the Filipino perceives it as a dishonoring act towards another's personhood. Secondly, it may also be the fact that the rogue data point in Case 1 is an actual data value, while the data points in Case 2 are true erroneous data points or differing views of right versus wrong in how data analysis is performed.

The other departure is in the last row of Table 8 – viability. Almost double the number of students found that Case 2, with the erroneous data points, violated the rule of viability. Both of these point to the concept of right versus wrong and good versus evil, as presented in Table 2. These results could mean that there is a difference in the level of data

manipulation that is considered acceptable for these groups of students. Thus, the results do not support H2 that there are no significant differences between the two ethical scenarios for the Philippine students.

Tables 9 and 10 explore the differences between the two cultures in how they view the cases and the ethical implications of the cases.

Table 9: Hypothesis Tests between US and Philippines Students, Case 1

Null Hypothesis	Z score	P value
$\mu_{integrity\_USA} = \mu_{integrity\_Philippines}$	3.07	0.0021
$\mu_{trust\_USA} = \mu_{trust\_Philippines}$	2.45	0.0143
$\mu_{accountability\_USA} = \mu_{accountability\_Philippines}$	-0.03	0.9787
$\mu_{transparency\_USA} = \mu_{transparency\_Philippines}$	-0.81	0.4205
$\mu_{fairness\_USA} = \mu_{fairness\_Philippines}$	3.43	0.0006
$\mu_{respect\_USA} = \mu_{respect\_Philippines}$	1.12	0.2629
$\mu_{rule\_of\_law\_USA} = \mu_{rule\_of\_law\_Philippines}$	0.30	0.7669
$\mu_{viability\_USA} = \mu_{viability\_Philippines}$	0.61	0.5407

Table 9 shows three differences between the student groups. These differences occur for integrity, trust, and fairness rules applied to the case. For these three rules, the US students selected these more frequently than did the Filipino students, indicating a difference in how these rules are viewed across cultures. Part of the explanation could involve the concepts of "power distance" and "individualism/collectivism" from Hofstede (2011), in that the US students could feel more power to change the outcome by addressing the data errors with management, while the Filipino students might view it as a "management problem" and thus not in their realm of influence. Moreover, being collectivists, Filipinos are concerned with the condition of the group. The Filipinos' value of *pakikisama* (companionship) compels them to accommodate mistakes that are deemed forgivable to protect the integrity of the group; such that errors similar to the accounting case are perceived to be forgivable are set aside and kept within the group.

Table 10: Hypothesis Tests between US and Philippines Students, Case 2

Null Hypothesis	Z score	P value
$\mu_{integrity\_USA} = \mu_{integrity\_Philippines}$	0.28	0.7830
$\mu_{trust\_USA} = \mu_{trust\_Philippines}$	0.19	0.8506
$\mu_{accountability\_USA} = \mu_{accountability\_Philippines}$	-0.05	0.9610
$\mu_{transparency\_USA} = \mu_{transparency\_Philippines}$	-1.89	0.0590
$\mu_{fairness\_USA} = \mu_{fairness\_Philippines}$	1.14	0.2532
$\mu_{respect\_USA} = \mu_{respect\_Philippines}$	-0.15	0.8775
$\mu_{rule\_of\_law\_USA} = \mu_{rule\_of\_law\_Philippines}$	-0.72	0.4718
$\mu_{viability\_USA} = \mu_{viability\_Philippines}$	-0.64	0.5222

Table 10 yields no significant difference in how students viewed the real estate case. Both groups of students held the same ethical viewpoints as to the data error that occurred in this case.

Graphs 5 and 6 give a visual of tables 9 and 10. Graph 5 illustrates the differences between the student groups in their perceptions of integrity, trust, and fairness concerning the behavior in case 1. Graph 6 illustrates the similarities of the student groups in their analysis of Case 2. Both graphs indicate a strong side (integrity, trust, accountability, transparency, and fairness) and a weak side (respect, rule of law, and viability), possibly indicating a need in the students' ethical understanding of the rule set by which these cases are evaluated.

Thus, the results offer partial support to H3 that there is a significant difference between the US and the Philippine students' perception of ethics applied to data fraud and data error.

Graph 5: US and Philippine Students – Case 1
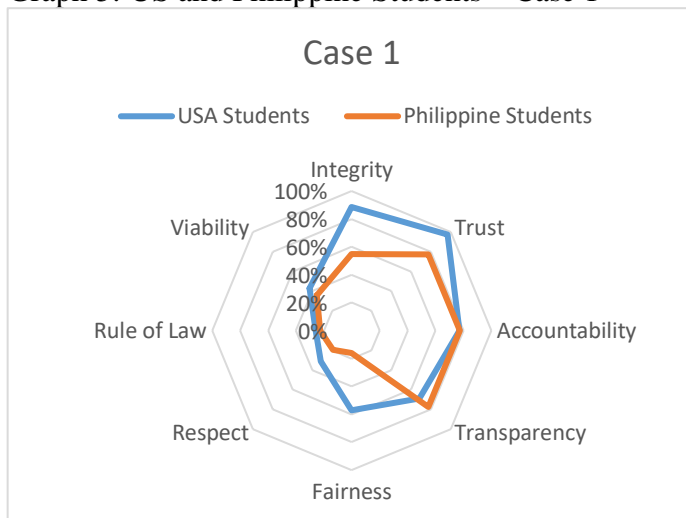
Graph 6: US and Philippine Students – Case 2
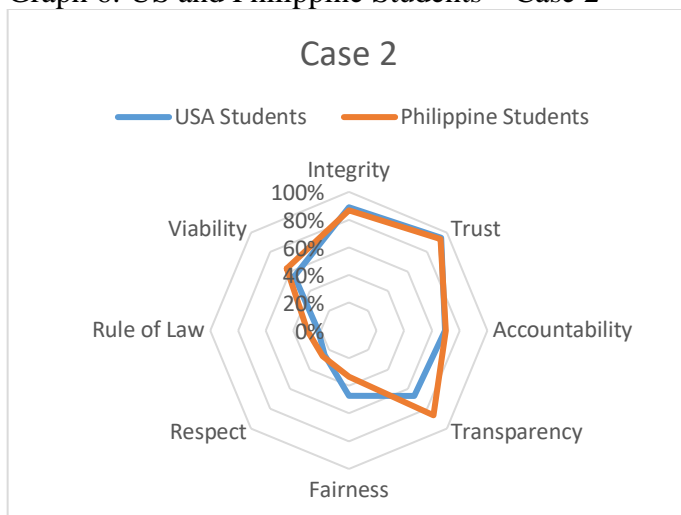
5. CONCLUSIONS AND RECOMMENDATIONS

This current study aims to demonstrate the similarity and differences in how different cultures, the US and the Philippines, look at the same ethical scenarios. To do this, three hypotheses were developed, and the results strongly supported H1 while provided no support for H2 and partially supported H3. The results suggest that culture and student preparation may have influenced how the students viewed ethical issues. The analysis mainly points to cultural differences (viewpoints) that might exist between the Filipino and the American cultures. These results could be useful in managing across cultural lines, as these two countries share many business interests.

Another interesting observation comes from the graphs. Generally, when one of the ethical rules is violated, most, if not all, of the others are violated as well (especially if the first one is "rule of law"). It is interesting that both groups of students (the US and the Philippines) focused on integrity, trust, accountability, transparency, and fairness, leaving respect, rule of law, and viability with relatively low response rates. As an instructor, this indicates that there should be more time spent exploring these concepts, as the student groups might not be as well versed in them as in the others.

While there have been many attempts at embedding ethics awareness into the curriculum, stand-alone courses, ethics embedded across the curriculum, micro-insertions of ethics into a course, or ethics cases incorporated into classroom activities, the results suggest re-enforcement of ethical behavior needs to be maintained throughout a college curriculum, and periodically reinforced throughout a working professionals career (as is done with professional societies' ethical statements). In the classic paper of Purcell (1977), he conducted an informal longitudinal study of ethical decision making concerning the padding of an expense account. Purcell interviewed former students who took a stand-alone ethics course in college ten years prior, and, after gaining experience in the corporate world, some responded that a refresher course in ethics post-university years would be valuable.

Embedding these cases into an analytics curriculum can illustrate for the students how data errors can impact analytical results and interpretation of findings. Further, in an ever expanding global world, the discussion surrounding Hofstede's dimensions, as brought up in these cases, can be enlightening for students getting ready to enter the global work force.

6. LIMITATIONS AND RECOMMENDATIONS FOR FUTURE WORK

The limited number of respondents is the major limitation of this research, which limits the generalizability of the results. Future research may include a much larger sample size to improve generalizability.

Secondly, the cases used in this study illustrate for the students how data can be manipulated, either intentionally or by accident, to manipulate numerical quantities, which can lead to false reporting of the results of data analysis. An important point to note when utilizing the Daniels Ethics Principles is that many of the principles are already understood by college-age students, for example, trust, fairness, and rule of law. Other principles might need to be discussed or researched more, such as viability and integrity, thus may cause inconsistencies.

APPENDIX A

Case Study
Accountant Salary Data

As the management team for a small, local accounting firm, you have been tasked with evaluating the pay structure in your company in order to remain competitive in the City, State region.

As a component of your analysis, you find that the average salary for an accountant in the City MSA (Metropolitan Statistical Area) is 58,018 $/year. This can be seen in the report generated by the State Department of Labor and Employment, available at: StateURL

In order to assess if your firm is competitive, you task the human resource person with generating a random data set of employee salaries.

Running a descriptive statistics analysis on the data, you observe the following table:

Annual Salary	
Mean	$ 69,187.00
Standard Error	$ 11,364.83
Median	$ 58,258.50
Mode	#N/A
Standard Deviation	$ 27,838.03
Sample Variance	774955779.2
Kurtosis	5.889544071
Skewness	2.420861779
Range	$ 70,598.00
Minimum	$ 55,264.00
Maximum	$ 125,862.00
Sum	415122
Count	6

In your excitement to inform the staff that the firm pays more than the average salary in the City MSA, you fire off an e-mail to everyone listing $\bar{x} = 69,187$ $/year$. As an afterthought, you evaluate the range, minimum, and maximum values and discover that the human resource person has included (the nature of randomness!) the CEO (who no longer does accounting work!) as one of the data points. Realizing that this inflates the mean, you wish you could "recall" the e-mail you just sent.

By leaving this data point in the data set after discovering the error, you open your firm to potential damage if discovered (loss of trust by employees). Your team is to prepare an ethical analysis that discusses:

    a. Who could be negatively affected by leaving the data point in the data set and leaving the report as is? (be sure to list all of the stakeholders)

    b. By leaving the CEO's salary in the data set, what is the effect on the mean?

    c. Circle the ethical principles that your team believes are violated by leaving the rogue data point in the report. Here is a link to definitions of the ethical principles.

        a. Integrity
        b. Trust
        c. Accountability
        d. Transparency
        e. Fairness
        f. Respect
        g. Rule of Law
        h. Viability

    d. Write a paragraph addressing each of the points identified in **part c** that explains, in the words of your team, why these principles were violated.

APPENDIX B

Case Study
Real Estate Data

As the management team for a small, local real estate company, you have been tasked with generating a report for both customers and banks who make loans to your customers.

As a part of this, you collect data on local housing prices versus the size of the house.

Computing a regression analysis for the data set, you obtain:

Regression Statistics	
Multiple R	0.741937192
R Square	0.550470797
Adjusted R Square	0.549057183
Standard Error	42429.46578
Observations	320

ANOVA

	df	SS	MS	F	Significance F
Regression	1	7.01033E+11	7.01E+11	389.4068	3.69338E-57
Residual	318	5.72483E+11	1.8E+09		

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Total	319	1.27352E+12				
Intercept	42788.06136	7269.836671	5.885698	1.01E-08	28485.00704	57091.11568
Sq. Feet	74.26308853	3.763320969	19.73339	3.69E-57	66.85893536	81.66724171

which appears to be a nice model, with the regression equation given as:
$\hat{y} = 42{,}778.1 + 74.3\,x$

This indicates that houses in this market increase in value by 74.3 $/ft². Your team prepares the report, a PowerPoint for presentation to banking teams, and a color brochure for distribution to potential clients.

However, in doing further analysis, your team finds that a couple of the houses are small (129 ft², 126 ft²) too small even to be considered "small homes" as is the current trend in some communities. (Here are the data points, it is assumed that these were entered incorrectly into the spreadsheet – i.e., human error)

Sq. Feet	List Price
126	$156,450
129	$138,250

By leaving these two data points in the data set after discovering the error, you open your business to potential damage if discovered (loss of trust, at a minimum; loss of goodwill; bad press; potential claims of fraud)…however, all the publicity materials are made! Your team is to prepare an ethical analysis that discusses:

a. Who could be negatively affected by leaving the data points in the data set and leaving the report as is? (be sure to list all of the stakeholders)

b. By leaving these data points in the regression, what is the effect on the slope?

c. Circle the ethical principles that your team believes are violated by leaving the two rogue data points in the report. Here is a link to definitions of the ethical principles.
   a. Integrity
   b. Trust
   c. Accountability
   d. Transparency
   e. Fairness
   f. Respect
   g. Rule of Law
   h. Viability

d. Write a paragraph addressing each of the points identified in part b that explains, in the words of your team, why these principles were violated.

ACKNOWLEDGEMENT

REFERENCES

[1] Bachmann, R., Ehrlich, G., and Ruzic, G. (2018). Firms and Collective Reputation: The Volkswagen Emission Scandal as a Case Study. CESifo Working Paper Series No. 6805. Retrieved from:
https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3124125

[2] Bates, H., Waldrup, B., & Calhoun, C. (2008). Ethics education in US accounting practice – a status report. Proceedings of the Academy of Accounting and Financial Studies 13(1), p. 7-12.

[3] Dal Porto, L. (2017). Dinged and Dented. *Quality Progress*, 50(12), p. 8-10.

[4] Kirilenko, A., Kyle, A., Samadi, M., and Tuzun, T. (2010). The Flash Crash: The Impact of High Frequency Trading on an Electronic Market. Social Science Research Network Working Paper Series. Retrieved from:
http://www.citeulike.org/group/13447/article/8676220

[5] Daniels Fund. (2018). Ethics Initiative. Retrieved from:
http://www.danielsfund.org/Ethics/

[6] Dumlao-Abadilla, D. (10 January 2018). BDO apologizes for fraud incidents, vows to intensify investigation. *Inquirer.net.* Retrieved on 27 February 2020 from
https://business.inquirer.net/243881/bdo-apologizes-account-breaches-vows-intensify-fraud-investigation

[7] Flaming, L., Agacer, G., and Uddin, N. (2010). Ethical decision-making differences between Philippines students and United States students. *Ethics & Behavior, 20(1), p. 65-79.*

[8] Gautschi, F., and Jones, T. (1998). Enhancing the ability of business students to recognize ethical issues: An empirical assessment of the effectiveness of a course in business ethics. *Journal of Business Ethics*, 17. p. 205-216.

[9] Hofstede, G. (2011). Dimensionalizing cultures: The Hofstede model in context. *Online readings in psychology and culture*, 2(1), p. 8.

[10] Hofstede, G. (2019). National Negotiation Styles. *Process of International Negotiations,* p. 193 – 201.

[11] Jaschik, S. (2018, July 10). Temple ousts business dean after report finds online M.B.A. program for years submitted false data for rankings. Retrieved from:
http://www.insidehighered.com

[12] Jewe, R. (2008). Do business ethics courses work? The effectiveness of business ethics education: an empirical study. *The Journal of Global Business Issues* – Conference edition.

[13] Johnson, E., McGuire, L., and O'Neill, D. (2015). Teaching ethics to undergraduate business students in Australia: comparison of integrated and stand-alone approaches. *Journal of Business Ethics*, 132, p. 477-491. Doi 10.1007/s10551-014-2330-5

[14] Malik, M. and Nawaz, M. (2018). The role of ethical leadership in whistleblowing intention among bank employees: Mediating the role of psychological safety. *Review of Integrative Business and Economics Research*. 7(s4). p. 238-252.

[15] McDonald, G, and Donleavy, G. (1995). Objections to the teaching of business ethics. *Journal of Business Ethics*, 14, p. 839-853.

[16] Mendoza, S. L. (2004). Pahiwatig: The role of ambiguity in Filipino American communication patterns [chapter 10] Communicating ethnic and cultural identity / edited by Mary Fong and Rueyling Chuang. *Rowman & Littlefield Publishers, Inc., USA*. pp. 151-164.

[17] Purcell, T. (1977). Do courses in business ethics pay off? *California Management Review*, XIX(4). p. 50-58.

[18] Racelis, A. (2013). Developing a virtue ethics scale: Exploratory survey of Philippine managers. *Asian Journal of Business and Accounting*, 6(1), p. 15-37.

[19] Reyes, J. (2015). Loób and Kapwa: An introduction to a Filipino virtue ethics. *Asian Philosophy*, 25(2), p. 148-171.

[20] Ritter, B. (2006). Can business ethics be trained? A study of the ethical decision-making process in business students. *Journal of Business Ethics*, 68. p. 153-164.

[21] Sia, L. A., and Tan, T. A. G. (2016). The Influence of Organizational Justice on Job Satisfaction in a Hotel Setting. *DLSU Business & Economics Review*, *26*(1).

[22] Sison, A., and Palma-Angeles, A. (1997). Business ethics in the Philippines. *Journal of Business Ethics*, 16, p. 1519-1528.

[23] Slocum, A., Rohlfer, S., and Gonzalez-Canton, C. (2014). Teaching business ethics through strategically integrated micro-insertions. *Journal of Business Ethics*, 125. p. 45-58.

[24] Teoh, E., and Kidd, D. (2017). Rage Against the Machine? Google's Self-driving Cars Versus Human Drivers. *Journal of Safety Research*, 63, p. 57-60.

[25] U.S. Embassy Manila (2010). American business engagement in the Philippines. [online] Retrieved on 28 February 2020 from photos.state.gov/libraries/manila.pdfs

[26] Wang, L., and Calvano, L. (2015). Is business ethics education effective? An analysis of gender, personal ethical perspectives and moral judgment. *Journal of Business Ethics*, 126. p. 591-602.